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EXAMINER	
COUGHLAN, PETER D	

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2129	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,378	FAN ET AL.	
	Examiner	Art Unit	
	PETER COUGHLAN	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. This office action is in response to an AMENDMENT entered July 7, 2008 for the patent application 10/725378 filed on December 3, 2003.

2. All previous Office Actions are fully incorporated into this Non-Final Office Action by reference.

Status of Claims

3. Claims 1-33 are pending.

35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-33 are rejected under 35 U.S.C. 101 for nonstatutory subject matter.

The claims and specification recite preemption of applications for the invention. Gottschalk v. Benson, 409 U.S. 63, 64 (1972); see also Flook, 437 U.S. at 593 ("[R]espondent incorrectly assumes that if a process application implements a principle

in some specific fashion, it automatically falls within the patentable subject matter of 101."). "Abstract ideas" are one type of subject mater that the Supreme Court has consistently held fall beyond the broad reaches of patentable subject matter under §101. As early as Le Roy v. Tatham, 55 U.S. 156 (1852), the Supreme Court explained that "[a] principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them exclusive right." Id. At 175. Since then the unpatentable nature of abstract ideas has repeatedly been confirmed. See, e.g., Diehr, 450 U.S. at 67; Rubber Tip Pencil Co. v. Howard, 87 U.S. 498, 507 (1874). The very cases of this court that recognized the patentability of some business methods have reaffirmed that abstract ideas are not patentable. See AT&T, 172 F.3d at 1355; State Street Bank, 149 F.3d 1373; see also In re Alappat, 33 F.3d 1526, 1542-43 (Fed. Cir. 1994) (en banc).

Paragraph 0006 of the application illustrate the invention is an abstract concept due to its many applications both known and unknown uses. Paragraph 0213 discloses numerous areas in which the invention can be employed thus indicating the invention falls within the domain of being an abstract concept. In addition paragraph 0213 recites both known and unknown applications thus the specification confirms preemption. In paragraph 0215, the specification affirms both the invention is an abstract concept and preemption. 'One of ordinary skill in the art, after having read the present application, would readily recognize that this commercial aspect could be implemented in a variety of ways.' The ability of the invention 'could be implemented in a variety of ways'

indicates the invention falls within the domain of an abstract concept. The phrase 'variety of ways' illustrates preemption.

Claims and/or the specification that describe an abstract concept or preemption of implementations of the invention are nonstatutory.

Claims 14-19 are rejected under 35 U.S.C. §101 by use of the term 'signal bearing media.' In ¶0206, the specification defines signal bearing media as 'including transmission media such as digital and analog communications.' Transmission media such as digital and analog communications are unable to store instructions and are nonstatutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 12-33 are rejected under 35 U.S.C. 102(b) (hereinafter referred to as **Chan**) being anticipated by Chan, 'Distributed Data Mining in Credit Card Fraud Detection.'

Claim 1

Chan teaches dividing said dataset into a plurality of subsets of data (**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.) ; and developing an estimated learning model for said dataset by developing a learning model for a first subset of said plurality of subsets, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 2

Chan anticipates progressively forming an ensemble model of said dataset by sequentially developing a learning model for each of a successive one of said plurality of subsets (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.), until a desired indication of termination has been reached. (**Chan,** p70, C2:6-30; 'Indication of termination' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 3

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said first subset, said estimated final accuracy comprising an estimated accuracy of said estimated learning model for said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 4

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said subset being currently developed, said estimated final accuracy comprising an estimated accuracy of said ensemble model of said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 5

Chan anticipates developing an estimated training time to complete development of said ensemble model. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 6

Chan anticipates each said example in said dataset carries a benefit and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits. (**Chan,** p67 C2:1 through C3:7, p68, C1:9 through C3:10; 'Dataset carries a benefit' of applicant is disclosed by the detection of 'fraud' of Chan. 'Overall accuracy' of applicant is disclosed by the results of 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan)

Claim 7

Chan anticipates said benefit is not equal for all said examples, said learning comprising a cost-sensitive learning, and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits in units of money. (**Chan,** p67 C3:8 through p68, C1:8; 'Benefit is not equal for all said examples' of applicant is illustrated by the 'data are highly skewed' of Chan.)

Claim 8

Chan teaches a database divider for dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and a base classifier calculator for developing a learning model for data in a first subset of said N subsets. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 9

Chan anticipates an ensemble calculator for progressively developing an ensemble model of said database of examples by successively integrating a base classifier from successive subsets of said N subsets. (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.)

Claim 12

Chan teaches providing a database of example data to be used to process an inductive learning model for said example data, wherein said inductive learning model is derivable by dividing said example data into N segments (**Chan,** p68, C1:9 through C3:10; 'N segments' of applicant is equivalent to 'subsets' of Chan.); and using at least one of said N segments of example data to derive a base classifier model, said base classifier model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset (**Chan,** p68, C1:9 through C3:10, p67

C1:10-22; 'Base classifier model' of applicant is equivalent to 'base classifiers' of Chan. 'Without processing an entirety of said dataset' of applicant is disclosed by 'scalable techniques' and 'scalability' of Chan.); receiving said database of example data (**Chan,** p70 C3:33-53; One example of 'example data' of applicant is equivalent to 'training set' of Chan.) and executing said method of deriving said inductive learning model (**Chan,** p70, C2:40 through C3:8; A step in 'executing said method of deriving said inductive learning model' is the creation of 'data subsets' of Chan.) providing an inductive learning model as derived (**Chan,** p70 C2:32 through C3:8; 'Providing an inductive learning model' of applicant is the actual division of the dataset 'into four data subsets' of Chan. This is based on the applicants ¶0002 'inductive model is built both "accurately" and "efficiently" by dividing a database of examples into N disjoint subsets of data, and a learning model (base classifier.'); executing an application of an inductive learning model as derived (**Chan,** p70 C3:21-32; 'Executing an application' of applicant is disclosed by 'apply a learning algorithm or algorithms to each subset' of Chan.); and receiving a result of said executing said application. (**Chan,** p68 C1:9 through C3:10; 'Receiving a result' of applicant is disclosed by 'combining their results' of Chan.)

Claim 13

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model for a first subset of said N subsets, said estimated learning model thereby providing an

estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 14

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model for a first subset of said N subsets, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 15

Chan anticipates progressively forming an ensemble model of said dataset by sequentially developing a learning model for each of a successive one of said N subsets, until a desired indication of termination has been reached. (**Chan,** p68, C1:9 through C3:10; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan.)

Claim 16

Chan anticipates developing at least one of a current accuracy and an estimated final accuracy, said current accuracy comprising an accuracy of said learning model for said subset being currently developed, said estimated final accuracy comprising an estimated accuracy of said ensemble model of said dataset. (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan.)

Claim 17

Chan anticipates developing an estimated training time to complete development of said ensemble model. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 18

Chan teaches wherein each said example in said dataset carries a benefit and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits. (**Chan,** p67 C2:1 through C3:7, p68, C1:9 through C3:10; 'Dataset carries a benefit' of applicant is disclosed by the detection of 'fraud' of Chan. 'Overall accuracy' of applicant is disclosed by the results of 'combine the resultant base

models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan)

Claim 19

Chan anticipates said benefit is not equal for all said examples, said learning comprising a cost-sensitive learning, and said accuracy comprises an overall accuracy that reflects an estimated total amount of reward from said benefits in predetermined units. (**Chan,** p67 C3:8 through p68, C1:8; 'Benefit is not equal for all said examples' of applicant is illustrated by the 'data are highly skewed' of Chan.)

Claim 20

Chan teaches dividing said dataset into N subsets of data(**Chan,** p68, C1:9 through C3:10; 'Subsets' of applicant is equivalent to 'subsets' of Chan.); and developing an estimated learning model for said dataset by developing a learning model for a first subset of said N subsets. (**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best base classifier' of Chan. 'First subset' of applicant is equivalent to 'over one subset' of Chan.)

Claim 21

Chan anticipates calculating an estimated accuracy for said leaning model. (**Chan,** p68 'The AdaCost algorithm' window, C2:8-21; 'Calculating an estimated

accuracy' of applicant is equivalent to using the 'Laplace estimate' to find a rule set accuracy of Chan.)

Claim 22

Chan anticipates calculating a remaining training time. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan. So if two months are needed and 1.5 months have been processed, the remaining .5 month is equivalent to 'calculating remaining training time' of Chan.)

Claim 23

Chan anticipates progressively, and stepwise, forming an ensemble model of said dataset by sequentially using additional said subsets to develop an additional learning model for said subset and incorporating each said additional learning model into an aggregate model to form said ensemble model, wherein said progressive and stepwise forming can be terminated prior to developing an additional learning model for all of said N subsets. (**Chan,** p70, C3:33-53, p70, C2:6-30; 'Stepwise forming an ensemble model' of applicant is equivalent to 'class-combiner (or stacking) strategy' of Chan. 'Terminated prior to developing an additional learning model for all of said N subsets' is illustrated by the concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 24

Chan anticipates said examples carry potentially different benefits, said method further comprising: calculating an estimation of an accumulated benefit for said learning model. (**Chan,** p67 C3:8 through p68 C1:8; 'Potentially different benefits' of applicant is disclosed by each transaction has different dollar amount, thus 'different benefits' of applicant maps to the 'different dollar amount' with possible fraud implications.)

Claim 25

Chan teaches for a dataset comprising a plurality of elements (**Chan,** p68 C1:9 through C3:10; 'Dataset' of applicant is equivalent to 'large data set' of Chan.), each said element comprising a feature vector (**Chan,** p68, 'The AdaCost algorithm' window; 'Feature vector' of applicant is illustrated by the '(x_1, c_1, y_1) of training examples' of Chan.), said dataset further comprising a true class label for at least a portion of said plurality of elements, said true class labels allowing said dataset to be characterized as having a plurality of classes, dividing at least a part of said portion of said plurality of elements having said true class label into N segments of elements (**Chan,** table 1; 'True class label' of applicant is equivalent to 'true positive' of Chan.); and learning a model for elements in at least one of said N segments, as an estimate for a model for all of said dataset, said estimated learning model thereby providing an estimated model for said dataset that is obtainable without processing an entirety of said dataset. (**Chan,** p73 Table 3, line 3; 'Learning a model' of applicant is equivalent to the generation of a 'best base classifier' of Chan.)

Claim 26

Chan anticipates using a second part of said portion of said plurality of elements having said true class label as a validation set for said model. (**Chan,** table 1 and p70, C2:32 through C3:20; Chan discloses randomly dividing a skewed distribution into a resulting 50:50 distribution. It is inherent that using only 'true positive' is the only indicator of validation due to the fact the remaining choices are not positive indicators.)

Claim 27

Chan anticipates using said validation set to calculate a predicted accuracy for said model. (**Chan,** p68 'The AdaCost algorithm' window, C2:8-21; 'Calculating an estimated accuracy' of applicant is equivalent to using the 'Laplace estimate' to find a rule set accuracy of Chan. It is inherent that a 'validation set' is used to 'predict accuracy.')

Claim 28

Chan anticipates calculating an estimated training time for learning a model based on a remainder of said N segments. (**Chan,** p71, C1:1-18; 'Estimated training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan. What ever has not been completed, a difference between the values results in the 'estimated training time.')

Claim 29

Chan anticipates establishing a benefit matrix associated with said plurality of classes, said benefit matrix defining a benefit for each said element in said dataset as applicable for each said class. (**Chan,** p71, table 2)

Claim 30

Chan teaches anticipates using a validation dataset to measure a validation of said model (**Chan,** p70, C3:33-53; 'Validation dataset' of applicant is equivalent to validation set' of Chan. It is inherent that a validation dataset is used for validation purposes.); and calculating an aggregate benefit for said model, as based on said validation dataset. (**Chan,** p70, C3:33-53; 'Aggregate benefit' of applicant is the result of the outcome of the 'class combiner (or stacking)' of Chan.)

Claim 31

Chan anticipates progressively developing an ensemble model by successively learning a model for elements in one of a remaining said N segments, wherein said progressively developing said ensemble model is terminable at any stage. (**Chan,** p70, C3:33-53, C2:6-30; 'Developing an ensemble model' of applicant is equivalent to the 'class combiner (or stacking)' of Chan. 'Termination at any stage' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen.)

Claim 32

Chan anticipates calculating at least one of an accuracy (**Chan,** p68, C1:9 through C3:10; Chan discloses smaller subsets which generate results. The output of each smaller subset classifier is equivalent to 'current accuracy' of applicant. 'Final accuracy' of applicant is disclosed by the 'combine the resultant base models by metalearning from the classifiers behavior to generate a metaclassifier' of Chan. The Examiner is unsure what 'accuracy' the applicant is describing.) and a remaining training time for said ensemble model. (**Chan,** p71, C1:1-18; 'Remaining training time' of applicant is disclosed by the natural billing cycle of credit card transactions of two months of Chan.)

Claim 33

Chan anticipates entering a threshold for at least one of said accuracy and said remaining training time; and automatically terminating said progressively developing said ensemble model whenever said threshold is exceeded. (**Chan,** p70, C2:6-30; 'Threshold' of applicant is disclosed by the 'overhead threshold' of Chan. The concept of 'overhead threshold' is that is makes no sense to spend more money to find fraudulent behavior than what is being stolen. This illustrates 'automatically terminating' of applicant.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan as set forth above, in view of Stolfo. ('JAM: Java Agents for Meta-Learning over distributed Databases', referred to as **Stolfo**)

Claim 10

Chan teaches anticipates a memory interface to retrieve data from said database and to store data as said inductive learning model is progressively developed. (**Chan,** p70, C3:33-53; If Chan can produce a classifier based on a training set and then test the classifier based on a validation set, then a 'memory interface' is inherent to perform these function using 'training set' and 'validation set' of Chan.)

Chan does not teach a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development.

Stolfo teaches a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development. (**Stolfo,** p2, C2:12; 'Graphic user interface' of applicant is equivalent to 'graphic user interface' of Stolfo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Chan by implementing a GUI as taught by Stolfo to have a graphic user interface to allow a user to selectively enter parameters, to control the progressive development of said ensemble model, and to view results of said progressive development.

For the purpose of avoiding altering computer code for changing parameters within the invention.

Claim 11

Chan teaches a memory containing one or more of a plurality of segments of said example data, wherein each said segment of example data comprises data for calculating a base classifier for an ensemble model of said dataset(**Chan,** p68, C1:9 through C3:10; 'Plurality of segments' of applicant is equivalent to 'subsets' of Chan.); a base classifier calculator for developing a learning model for data in one of said N segments(**Chan,** p73 Table 3, line 3; 'Learning model' of applicant is equivalent to 'best

base classifier' of Chan. 'One of said N segments' of applicant is equivalent to 'over one subset' of Chan.); an ensemble calculator for progressively developing an ensemble model of said database of examples by successively integrating a base classifier from successive ones of said N segments (**Chan,** p68, C1:9 through C3:10, p70, C3:33-53, p70, C2:6-30; 'Ensemble model' of applicant is equivalent to 'combine the resultant base models' of Chan. 'Successive ones of said N segments' of applicant is disclosed by 'class-combiner (or stacking) strategy' of Chan.) a memory interface to retrieve data from said database and to store data as said inductive learning model is progressively developed. (**Chan,** p70, C3:33-53; If Chan can produce a classifier based on a training set and then test the classifier based on a validation set, then a 'memory interface' is inherent to perform these function using 'training set' and 'validation set' of Chan.)

Chan does not teach a graphic user interface to allow a user to at least one of enter parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development.

Stolfo teaches a graphic user interface to allow a user to at least one of enter parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development. (**Stolfo,** p2, C2:12; 'Graphic user interface' of applicant is equivalent to 'graphic user interface' of Stolfo.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Chan by implementing a GUI as taught by Stolfo to have a graphic user interface to allow a user to at least one of enter

parameters, to control the progressive development of said ensemble model, and at least one of display and printout results of said progressive development.

For the purpose of ease of implementation for the user.

Response to Arguments

5. Applicant's arguments filed on July 7, 2008 for claims 1-33 have been fully considered but are not persuasive.

6. In reference to the Applicant's argument:

REMARKS

Entry of this amendment is proper under 37 CFR § 1.116, since no new issues or claims are presented. More important, Applicants respectfully request the Examiner to withdraw the finality of the rejection in the latest Office Action as premature, since there were no claim amendment in Applicants' previous response, let alone amendments that would have necessitated the new ground of rejection of the claims, as alleged in paragraph 12 on page 27 of the Office Action.

Examiner's response:

The applicant is correct in stating the finality of the rejection was incorrect. The Examiner withdraws the finality.

7. In reference to the Applicant's argument:

II. THE 35 USC §101 REJECTION

Claims 1-33 stand rejected under 35 USC § 101 as allegedly directed to non-statutory subject matter.

In response to the Examiner's contention that, relative to claims 14-19 and citing paragraph [0206], "the specification defines signal bearing media as 'including transmission media", Applicants bring to the Examiner's attention that this rejection is clearly based upon improperly taking words out-of-context. The entirety of this paragraph reads as follows:

"[0206] Whether contained in the diskette 1300, the computer/CPU 1211, or elsewhere, the instructions may be stored on a variety of machine-readable data storage media, such as DASD storage (e.g., a conventional "hard drive" or a RAID array), magnetic tape, electronic read-only memory (e.g., ROM, EPROM, or EEPROM), an optical storage device (e.g. CD-ROM, WORM, DVD, digital optical tape, etc.), paper "punch" cards, or other suitable signal-bearing media including transmission media such as digital and analog and communication links and wireless. In an illustrative embodiment of the invention, the machine-readable instructions may comprise software object code."

Therefore, contrary to the Examiner's interpretation and, as is well known in the art, "transmission media" does indeed include communication links and wireless devices that have memory devices fully suitable for storage of the instructions, whether prior to transmission, during transmission, or following transmission. Moreover, these transmission memory devices could well be storing the instructions in either digital or analog. This Examiner, along with various others, has improperly attempted to take a few words out of the full context in this paragraph to arrive at an interpretation that has no basis on engineering reality.

That is, to the extent that the Examiner is correct that "Transmission media such as digital and analog communications are unable to store instruction ....", this "transmission media" is simply not what paragraph [0206] is describing, since this paragraph is clearly describing transmission media that is suitable for storage of instructions.

However, in an attempt to expedite prosecution, Applicants have added "tangible" to independent claim 14 to preclude the Examiner's out-of-context interpretation.

Relative to the Examiner's concerns for the second aspect of the statutory subject

matter, the method of the present invention clearly applies for any database having information content such that it can serve as a database for training. Not all databases would have such information content and any specific database may have content for training in one aspect but not another aspect.

Applicants' previous comments concerning "abstraction" and "mathematical algorithm" are not repeated in this response. The claimed invention is clearly not an abstract idea and, to the extent that mathematics is involved in the method of the present invention, it is clearly a practical application of any such mathematics. Moreover, the method of the present invention clearly passes the "useful, concrete and tangible result" confirmed in State Street and AT&T.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Examiner's response:

The context is not taken 'out of context.' Paragraph 0206 states 'the instructions may be stored on a variety of machine readable data storage media such as … or other suitable signal bearing media including transmission media such as digital and analog, and communication links and wireless.' There is nothing 'out of context' and the specification states that instructions can be stored on digital or analog transmission media. This is not statutory material under 35 U.S.C. §101. In addition the issue of preemption still remains, with various practical applications cited in paragraph 0006.

8. In reference to the Applicant's argument:

IIL THE PRIOR ART REJECTIONS

The Examiner alleges that newly-cited Chan anticipates the present invention as described in claims 1-9 and 12-33, and, when modified by newly-cited Stolfo, renders obvious claims 10 and 11.

Applicants respectfully disagree.

As an initial point, it is noted that Dr. Fan, one of the co-inventors of the present invention, is listed as a co-author on both of these newly-cited references, as co-author Wei Fan on the Chan article, and as co-author Dave W. Fan on the Stolfo article.

There are some very important and fundamental technical differences between these two newly-cited articles and the claimed invention. More specifically, as a first difference, Chan uses more complicated "hierarchical methods", such as "combiner" and "arbitrator". In contrast, the present invention uses "averaging"-based, single level, master-slave, embarrassingly parallel structure. Moreover, the scalability is linear in the present invention, whereas the previous work is not. Third, the method of the present invention does not reply on any statistical correlation of methods explicitly, whereas these previous methods do.

As clearly described in the summary on the bottom section of page 68, Chan is clearly directed to a method of data mining a large data set by dividing the data into subsets, data mining each subset in parallel, and then combining the results as a "metaclassifier."

This concept is entirely different from the claimed invention. Even if the "data mining" or Chan were to be considered equivalent to developing a learning model (which it is not), the processing in Chan is merely that of providing a parallel processing of the entire data by dividing the data into subsets and processing these subsets in parallel as a data mining processing. The results of the parallel processing for all the subsets is then combined to provide a data mining processing for the entire data set.

In contrast to the claimed invention, in Chan there is no suggestion to use these subsets as incremental estimates of the learning model of the entire data set. Rather, in Chan, the whole goal is to arrive at a metaclassifier that represents the data mining result of all of the data mining processing for all of the subsets. Secondary reference Stolfo is not relied upon to overcome this fundamental deficiency of Chan and does not provide a remedy for this fundamental deficiency.

Thus, turning to the clear language of the claims, in Chan there is no teaching or suggestion of: "A method of processing an inductive learning model for a dataset of examples, said method comprising: dividing said dataset into a plurality of subsets of data; and developing an estimated learning model for said dataset by developing a learning model for a first subset of said plurality of subsets", as required by independent claim 1.

Therefore, Applicants submit that all claims are clearly patentable over Chan.

Relative to the rejection for claims 10 and 11, wherein the Examiner urges to combine newly-cited Stolfo with Chan, Applicants respectfully submit that, even if combined, the combination would still not overcome the fundamental deficiency identified above that Chan is directed to an entirely different processing of data mining as a parallel data mining processing and has nothing to do with an incremental estimation of the model that would be ultimately developed if the entire data set were to be processed.

In view of the above, Applicants respectfully submit that the present invention contains aspects that are not present in the prior art of record, and the Examiner is, therefore, respectfully requested to reconsider and withdraw this rejection.

Examiner's response:

Claim 1 states 'Chan teaches dividing said dataset into a plurality of subsets of data.' There is no mention of 'subsets as incremental estimates of the learning model of the entire data set' within the claim. 'Subsets' of applicant is equivalent to 'subsets' of Chan. (**Chan,** p68, C1:9 through C3:10)

Examination Considerations

9. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, l 45-48; p 2100-9, c 1, l 1-4). The Examiner has the full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the

art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

10. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and sprit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but link to prior art that one of ordinary skill in the art would find inherently appropriate.

11. Examiner's Opinion: Paragraphs 9 and 10 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

12. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

-'Distributed data mining in credit card fraud detection': Chan

-'Metalearning for multistrategy and parallel learning': Chan

-'JAM:Java agents for metalearning over distributed databases': Stolfo

-'Introduction to numerical methods': Stark

-'The world according to wavelets': Hubbard

13. Claims 1-33 are rejected.

Correspondence Information

14. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for entry.)

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/P. C./

Examiner, Art Unit 2129

Peter Coughlan

4/29/2008

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129